



# RECOVERED CHEMICAL MATERIEL DIRECTORATE FACT SHEET

## QL (DIISOPROPYL AMINOETHYLMETHYL PHOSPHONITE)

**QL** served as one of the two non-lethal chemicals designed to mix together inside a munition while in flight to a target to form the lethal chemical VX.

Workers at Newport Chemical Depot, Indiana, produced the United States' inventory of the binary precursor chemical QL. After closing the Newport VX Production Facility in 1968, the QL was moved to the Pilot Plant at Aberdeen Proving Ground, Maryland, for storage. In the late 1980s, the QL was transferred to Pine Bluff Arsenal, Arkansas, for use in development work on the binary chemical weapons program, where it remained until its destruction in 2006.

Only partial construction of the Bigeye Bomb fill and close facility at the Pine Bluff Integrated Production Facilities (IBPF) was completed and no filling of the air-delivered binary bomb ever took place. The Army only produced a few of these bombs. They remained empty or filled with a safe, simulated chemical for test purposes. International treaty inspectors witnessed the destruction of all these bombs in the summer of 1999.

### Major Components of the Bigeye Bomb

Major components of the bomb included the airframe, reactor and dissemination systems. The airframe consisted of the outside skin and folding fin assembly. The reactor area inside the bomb contained a QL chamber and sulphur-filled container. Prior to release of the bomb, a steel diaphragm separating the QL and the sulphur-filled container would rupture, allowing the chemical components to mix and form the nerve agent VX. Once operators released the bomb, a time-delayed fuze would ignite to cut several dissemination ports allowing air to be forced through the bomb, spreading agent over a target area.

### QL Storage

Pine Bluff Arsenal stored drums containing QL ranging from 20 to 85 gallons. For the chemical treatment, the Army renovated an existing building into the Pine Bluff Binary Destruction Facility (PB BDF). PB BDF neutralization operations for QL began on June 6, 2006. The Army completed the QL mission on Sept. 27, 2006. The building was demolished in December 2006.

### Processing QL

QL, a thick, colorless liquid in its original form, has a strong, fishy smell. QL, when combined with a second non-lethal compound, makes the nerve agent VX. QL mixes with water for destruction.

The QL neutralent also contains byproducts that require additional treatment before final disposal. The QL operation ended on September 27, 2006, generating approximately 80,000 gallons of QL neutralent.

RCMD disposes of chemical materiel in a safe, environmentally sound and cost-effective manner, ensuring compliance with the Chemical Weapons Convention.

### WHAT COMPOUNDS WERE IN QL NEUTRALENTS?

QL neutralent contained:

- approximately 82 percent water
- approximately 10 percent diisopropyl aminoethylmethyl phosphonite
- slightly more than 5 percent methyl phosphonic acid
- about 3 percent ethanol
- trace amounts of sodium hydroxide

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